

PATENT COOPERATION TREATY

REC'D 25 JUL 2005

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From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

29/9

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2005/050898

International filing date (day/month/year)
14.03.2005

Priority date (day/month/year)
18.03.2004

International Patent Classification (IPC) or both national classification and IPC
B23F13/06, B23F23/00, F16H1/16

Applicant
UNIVERSITA DEGLI STUDI DI ROMA "TOR VERGATA"

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b/s(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/B2005/050898

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/B2005/050898

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
Industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-20
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-20
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

- 1 Reference is made to the following documents:

D1 : WO 03/042574 A (STOIANOVICI, DAN; KAVOUSSI, LOUIS; HOLTZ,
DOUGLAS) 22 May 2003 (2003-05-22)

D2: US-A-6 148 683 (FLEYTMAN ET AL) 21 November 2000 (2000-11-21).

2 **INDEPENDENT CLAIM 1**

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 6 does not involve an inventive step in the sense of Article 33(3) PCT.

Document D1 discloses (the references in parentheses applying to this document):

A generating device and a method of cutting a worm gear, the generating device (page 21 lines 3-16) suitable for the definition of races (20) of the worm gear (200) in a worm-gear reduction unit (100, 200) with circulation of bearing balls (3), comprising a main body (page 21 line 3-7) shaped as an angular portion of the worm (1) apt to mate with said worm gear (2) and having an extension equal to an angular pitch of the worm (1) itself; onto which portion is added the envelope (page 18 line 24 to page 29 line 4) of the position of a ball inside the race of the worm (1), the centres of which ball define a reference cylindrical helix (page 29 line 2-7) and wherein the radius of the ball is not necessarily identical to that of the ball (3) circulating in the reduction unit.

The subject matter of claims 1 and 6 therefore differs from that of document D1 in that the cutting kinematics of the worm gear is applied to the worm.

As known by the person skilled in the art, each of the worm or worm wheel profiles may be derived by generating an envelope profile of the mating partner. The application of the worm wheel cutting process to the worm too, is therefore not regarded as involving an inventive step.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/IB2005/050898

3 DEPENDENT CLAIMS 2-5 and 7-20

Dependent claims 2-5 and 7-20 do not seem to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(2) and (3) PCT) in view of the documents cited in the search report and the general technical knowledge of the person skilled in the art.